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### Tanzania Palm Oil

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<b>Initiative Name</b>	<b>Case 5 – Tanzania Palm Oil</b> <i>FELISA ('Farming for Energy for better Livelihoods in Southern Africa' / 'Kilimo cha Nishati') Company Ltd.</i>
<b>Location</b>	<i>Kigoma, Kigoma Region, Tanzania</i>
<b>Initiation Date and Duration</b>	<i>Incorporated: April 2005 Start of field operations: November 2005</i>
<b>Funder(s)</b>	<i>Private company</i>
<b>Project Initiator</b>	<i>Hamimu Hongo (Tanzanian) and Stefan De Keyser (Belgian)</i>
<b>Overall Budget</b>	<i>US\$ 836,000</i>
<b>Output</b>	<i>Crude palm oil (CPO); Biodiesel</i>
<b>Area of Land</b>	<i>100 hectares planted 4,250 hectares now owned for expansion</i>
<b>Beneficiaries</b>	<i>FELISA has yet to begin large-scale production of CPO or biodiesel. 990 farmers have received seedlings, and a large number of individuals who currently farm palm oil trees are potential suppliers to FELISA and therefore—along with their households and the employees of the company—are beneficiaries as suppliers of an emerging market.</i>

## Background and Context

FELISA Ltd is based in Kigoma town on the shores of Lake Tanganyika in western Tanzania. The company cultivates oil palm trees (*Elaeis guineensis*) and processes fresh fruit bunches (FFB) to produce crude palm oil (CPO), an edible oil used for cooking, cosmetics and pharmaceuticals. FELISA is presently 100% self-financing, funded by equity contributions from 24 (majority Belgian) shareholders.

FELISA has a 100 hectare oil palm plantation 75km from Kigoma town. They have recently obtained another 4,258 hectares of land 150km from Kigoma, where they plan to also plant oil palm. A first crop of seedlings was planted in December 2005, and a second in January 2007. Oil palm trees take four to five years to mature to fruition, and the production of CPO is planned to begin in 2009. FELISA also aims to purchase FFB from local small-scale farmers as part of a proposed outgrower scheme. They calculate that a total of 500 hectares under local cultivation will meet demand once their own plantations bear fruit.

An influx of refugees from conflicts in Burundi and the Democratic Republic of Congo has placed great pressure in the Kigoma area, but this trend is now reducing with repatriations. The refugee camps absorbed many natural resources regionally, as evidenced in mass deforestation for firewood and a large reduction of water. Investment in western

Tanzania, especially Kigoma region, is low, and there is sparse allocation of funds in the agricultural sector. Many people in the region are subsistence farmers and, according to FELISA, do not notice economic shocks as profoundly as those with stronger ties to the wider economy.

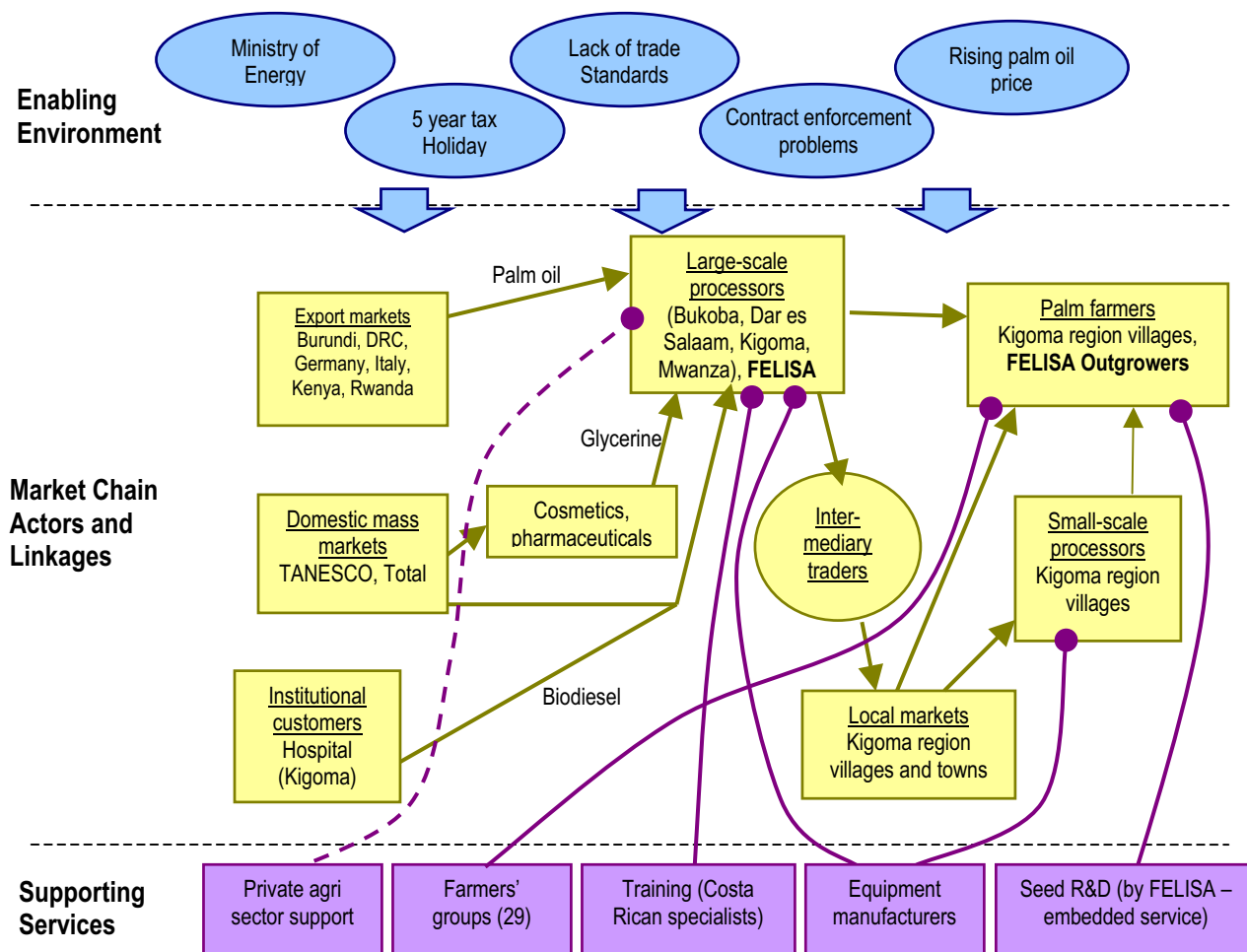
Crops are harvested and planted during the rainy seasons of October-January and March-June, and prices decline during these times of peak production. During off-peak periods farmers owning palm oil harvest the few ripe FFB and prune and weed. Between January-February farmers harvest maize and plant fast crops, such as beans and sunflower. The planting of palm oil trees takes place at the onset of the rainy season because the oil palm requires much water. Although malaria is present all year, infection rates increase during these wet periods.

The company's initial strategic choice was to grow and process palm oil for biodiesel production for the domestic market, targeting the national utility TANESCO back-up generators and possible transport fuel blending markets. However with the world market price of CPO having risen sharply, from \$0.25/litre in 2005 (when their first planting took place) to a high of US\$1.35 in 2008, FELISA are considering additional non-energy market options.

## The Initiative Market Map

The market map below is currently in an emerging state and FELISA are still considering which market segments to target. The map illustrates the various

existing market options that FELISA will be joining and developing further.



With respect to the **Enabling Environment**, FELISA have sought to influence the Ministry of Energy's biofuel policy so that they and other domestic biodiesel producers can operate in a known environment when negotiating with foreign buyers. One call is for a policy that stipulates the blending ratio between biodiesel and fossil diesel used in Tanzania. Ideally this policy would also ensure that a certain percentage of biodiesel is produced internally. Primary producers and processors have not made similar efforts to engage with the policymaking process. Contract enforcement issues have not affected any Kigoma-based actors, nor have bodies that monitor trade standards. There are reported cases of product adulteration, with incidents of waste water being added to CPO (apparently by middlemen who, in one case, paid farmers to bring waste water to be added to the oil). The effect has been that some

buyers avoid Kigoma and now purchase instead in Mbeya. While FELISA has not experienced corruption, employees recognise that any process that involves government officials can run the risk of delay due to institutional bureaucracy which may impact on the timely accessing of services. In registering their new land, for example, FELISA had to wait close to an entire year for the process to be completed. This is due to the fact that only one person is authorised to make declarations about land and their services are in high demand. FELISA currently enjoys a five year tax holiday, along with a capital goods import duty exemption. Local farmers, however, are frequently levied to pay various taxes, including a tax for goods going to market. Accessing loans or grants for agricultural and agri-related industries is difficult. Banks in particular perceive the sector to be high-risk, and

rarely provide loans, especially for perennial crops. FELISA have recently applied to Private Agricultural Sector Support for assistance in obtaining a loan and, if successful, this should have positive knock-on effects for primary producers working with FELISA.

Of the **Supporting Services**, inputs and finance are sourced by FELISA themselves. All linkages are created and maintained by FELISA's own efforts, although they have benefited from some outside influences, in particular training received from specialists from Costa Rica. Research relating to market information is self-initiated, and lessons are

learnt within the company from their exposure to the domestic and international production markets. FELISA's proposed outgrower scheme, for example, bears some resemblance to the agreement between Prokon, a German private company in Rukwa that sources its *Jatropha* from local farmers in the region. The Ministry of Agriculture sends investors interested in palm oil production to FELISA, and one of the Directors is regularly invited to present at international conferences. FELISA regard themselves as a learning institution.

## Relationships between Market Actors

	Palm Farmers	FELISA	Small-scale Processors	Intermediary Traders	Farmers' Groups
Palm Farmers					
FELISA	Good, Formal, Technical, Commercial				
Small-scale Processors	Fair, Informal Commercial	Fair, Informal Competitive			
Intermediary Traders	Poor, Informal Commercial	Fair, Informal Competitive	Fair, Informal Commercial		
Farmers' Groups	Good, Formal Technical, Commercial	Fair, Informal, Technical, Commercial	Fair, Informal, Commercial	Poor, Informal, Commercial	

Before the emergence of FELISA relationships between market actors were purely commercial, with palm farmers existing in a state of dependency on a few buyers who dictated prices and offered no other support. In Simbo village, some 18km from Kigoma, for example, palm farmers have calculated that there are many risks in processing their crop themselves, and the profit margin from their few drums of oil is small. The disadvantage of allowing others to process their crop, however, is that the farmers do not retain ownership of by-products such as kernel cake which can also be sold.

FELISA wants to support palm farmers by offering technical support in farming methods through conducting extension services together with the government. A rural development policy exists, but it is not always implemented. FELISA's solution is to introduce an outgrower scheme based on demonstration plots where an extension officer will train small-scale suppliers on modern oil palm production and provide palm farmers with high yield hybrid seedlings. In the long run they hope to help palm farmers establish their own processing plants. The

intended result is to improve the quality of FFB that farmers bring to FELISA, thereby helping meet demand. Palm farmers are under no obligation to sell only to FELISA, and the price is negotiable; although there would be a contractual agreement that binds the farmer to supply a certain amount of a crop at a specified quality over a given period of time.

Farmers' groups share information on farming methods and markets. They provide an opportunity to FELISA, to engage with many farmers at once, and a channel for lobbying decision makers in favour of FELISA's planned actions. The largest group is *Wabango*, who have their own savings co-operative, and a leadership committee who have conducted a palm oil study tour in Malaysia. *Wabango* have expressed an interest in selling their oil directly to FELISA, but price negotiations are yet to be finalised. FELISA are distributing hybrid seedlings to 29 farmers' groups (about 990 farmers) in Kigoma region, and to date they have given away 10,000 seedlings. The value of hybrid seedlings is slowly being realised and Care International and Red Cross are asking FELISA to supply them. FELISA

employ around 60 people for weeding on their farm,

and they employ permanent nursery staff.

## Balance of Rights, Responsibilities and Revenues of Market Actors

Actors\‘3Rs’	Rights	Responsibilities	Revenues
Small-scale palm farmers	- Use of land for farming	- "Caretakers" of the land and natural resources - Production of FFB at price and quality requirements	- Subsistence from farm land - Income from oil palm trees and remaining farm products
FELISA	- Farmers' CPO (where contract is in place)	- Outgrower training - Biodiesel processing - Pay and conditions to employees - Fair contracts to farmers	- Income from selling CPO and biodiesel
Small Scale Processors	- Use of by-products (if agreed with supplier)	- Connection to local markets - Responsible disposal of 'waste'	- Income from processing - Income from by-products (if agreed with supplier)
Intermediary traders	- None	- Connection to larger markets in Dar es Salaam	- Income from selling CPO
Farmers' Groups	- Joint action - (Individual members') use of land for farming	- Negotiating with buyers - Disseminating best practice - Representing members' interests	- Members' fees - Income from selling CPO

Farmers find out the local market price by asking those returning from the market. Daily markets occur in some villages where between ten and twenty local sellers walk or cycle with the FFB or, more usually, the CPO that they wish to sell. Bulk buyers come from towns such as Bukoba, Mwanza, Kasulu, and Tabora and, as outsiders, are not well known by the sellers. The bulk buyers purchase CPO from the market or from local machines in the villages and use their own vehicles to take away the CPO. They do not provide any support to the producers, and are variously described as 'ordinary

traders', 'middlemen' or 'profiteers'. Other buyers—often Tanzanian Indians, or those working for them—work directly for businesses that produce edible oil, pharmaceuticals or cosmetics, such as the Dar es Salaam-based Mohammed Enterprises, or VOil from Mwanza. Those producing margarine and soap come to the markets themselves, as do fish fryers from Mwanza, Bukoba and Nguruka (near Tabora) who purchase the oil for frying their fish for sale. Small quantities of CPO are also sold for household consumption.

## Impact on Livelihoods Assets

The full impact of FELISA cannot yet be assessed since the company has yet to begin production at scale of either CPO or biodiesel. Nevertheless, comments can be made in relation to the types of livelihood capital.

**Human capital:** In some villages (men report that) women and men do all tasks together, although this was not always observed to be the case. It is more often the case that women collect firewood and water. Soap-making tends to be done by men, whereas the production of oil can be carried out by either men or women. Technology is basic and usage minimal. Information on farm inputs, methods and equipments is

accessible, but the problem of how to access better technologies and how to access the Mwanza and Dar es Salaam markets remains. The CPO market in Tanzania is described by one informant as 'disorganised' and 'unsophisticated', with farmers having a low awareness of how to move beyond their present (usually quite limited) market contacts. Human capital does look set to rise, however, as more farmers are trained under the outgrower scheme.

**Natural capital:** Land ownership is either private or rental. There are few areas where oil palm trees can be harvested freely by anyone, and there is no evidence of conflict over the trees. FELISA plan to intercrop



between the oil palm trees for the first two years from planting on their new plantation, but after this period monoculture will be practised as the rooting system and high canopy prevents other plants from growing well. Oil palm requires a lot of water, so thrives in the lowlands, especially in riverine areas, and where the soil is irrigated. While there is a risk in the large new plantation that water supplying nearby areas under cultivation is reduced, waste water and biomass that remains after oil extraction is to be channelled into a tank, fermented, and used to produce compost for reintroduction into the oil palm tree plantations. The process is also to be used to produce biogas for cooking, heating and the production of electricity on-site.

**Social:** Some farmers have wealthy relatives who they can rely on if their financial situation becomes difficult, although assistance with small amounts of money occurs at the local level.

**Physical:** Firewood and charcoal—the popularly used forms of energy—are generally affordable. Biomass from oil palm trees that are used as a source of energy is free but is not clean. Locally, much of the remaining biomass from the oil palm tree is used in construction. Fronds are stripped and the stem used for roofing, building fences, and for firewood. The leaves are used for brooms, and the crown bunch is dried and used for firewood. The fibre is used for kindling, and in the manufacture of hardboard in Iringa and Mbeya regions. The growing apex of the trunk is tapped to obtain a

sweet juice that is fermented to make ‘*marovu*’ palm wine.

**Financial:** The world market price of CPO has risen sharply over the last few years after large producers such as Malaysia, Costa Rica, and Indonesia cut their output to the CPO market in favour of biodiesel production. Prices have risen from US\$0.25/litre in 2005 (when FELISA’s first planting took place) to a high of US\$1.35 in 2008. At the local market a 20 litre container now sells for around US\$15.30-20.40. Middlemen make around US\$2.55 profit, and the price is around US\$1.70/litre lower if the buyer collects the oil direct from the farmer. Although the entry of FELISA as a substantial buyer holds the potential for farmers to better stabilise their income, the reluctance shown by banks to support farmer loan applications is unlikely to change. Nevertheless, farmers are generally happy as prices are rising. Last year a container was US\$10; two years ago it sold for around \$7.70. Five years ago the price was \$4.40 and \$1.60 ten years ago. Farmers pay a local village government tax of \$0.16 for each twenty-litre container. At the local market the buyer also pays a tax. Local community saving schemes (SACCOS) exist, although many small-scale farmers have limited savings because their existence is subsistence. Any profit is usually reinvested into clearing and tendering farms, paying local labourers to harvest, paying others to draw water and other manual tasks. Remittances rarely reach home in cash. FELISA plans to encourage its suppliers to open bank accounts so that they can deposit to them without marketplace transactions.

## Overall Conclusions

Oil palm has a high production potential among the oil crops, at up to 6,000 litres/ha/year. This compares to <3,000l/ha for avocado and coconut, and <2,000l/ha for brazil, macadamia and pecan nuts, and for *Jatropha*. Oil palm trees are perennial, and are grown by small-scale farmers throughout Kigoma region in western Tanzania. The downside is that palm oil plantations can be water intensive, although FELISA plan to reintroduce waste water onto their farms.

This is a favourable time in Tanzania for growers of palm oil trees and traders in CPO, so to some extent FELISA’s decision over whether to supply the biodiesel market or to stick to supplying the edible oil and cosmetics/pharmaceuticals markets (or to supply both) is one that will not affect their local suppliers since there is demand in both markets. Nevertheless, there is a risk that by producing both CPO and venturing into the biodiesel market FELISA could force up the local price of CPO. FELISA and local partner organisations should remain vigilant about this potential impact and

implement mitigating measures to avoid its occurrence. One such method could be—to use FELISA’s own suggestion—for FELISA to only purchase medium and large FFB from the small-scale outgrower farmers, leaving smaller FFBs for local processing and consumption. The potential for FELISA to support rural livelihoods does exist, most notably in their proposed outgrower scheme that—in exchange for a more reliable source of extra crops to supplement supplies from their plantations—promises to offer support from a staff experienced in improved methods for the production and processing of palm oil. The staff are also familiar with the local and international CPO and (to a lesser extent) biodiesel markets. Here FELISA is able to provide another avenue to markets that presently farmers feel they are lacking when dealing only with bulk buyers locally. That said, there is no guarantee with FELISA that the oil (whether CPO or blended biodiesel) will end up in Tanzania